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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,289	04/24/2006	Philip J. Koh	A8459	2917

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EXAMINER	
GLENN, KIMBERLY E	

ART UNIT	PAPER NUMBER
2817	

MAIL DATE	DELIVERY MODE
04/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,289	KOH ET AL.	
	Examiner	Art Unit	
	KIMBERLY E. GLENN	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,9-16 and 18-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14,16,18-21,24-27 and 30-38* is/are allowed.

6)☒ Claim(s) *1,3-6, 9-13,15,22 23 and 28* is/are rejected.

7)☒ Claim(s) *29 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/9/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 9-13 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Katchi et al US Patent 5,821,836 (cited by applicant).

Katchi et al disclose a resonator comprising a first wafer 40; at least one pit etched in said first silicon wafer 40; a second silicon wafer 42 coupled to said first wafer; at least one pit etched in said second wafer 42 ; a microstrip line 32 which carries an electromagnetic input signal; wherein said at least one pit etched in said first wafer and said at least one pit etched in said second wafer are arranged so as to form a metallized cavity 44; wherein said microstrip line 32 comprises an air-filled waveguide (i.e. the air region above the microstrip 32); and wherein said resonator further comprises an slot 36 which enables the electromagnetic signal to be introduced into said at least one cavity from said microstrip line 32 Electromagnetic signal enters the resonator 60 in cavity 44 from microstrip line 32 via slot 36 and exits the cavity to line 52 via slot 48. The surfaces of wafers 40, 42 are metallized. A third wafer 50 is coupled to the second wafer 42. The interior face 55 of wafer 50 is also metallized. The slots 36 and 48 are formed in the metallized surfaces of the wafers (34 50). The wafers are

formed of silicon. Wafers 40, 42 are etched all the way through and micromachined cavity 44 is formed.

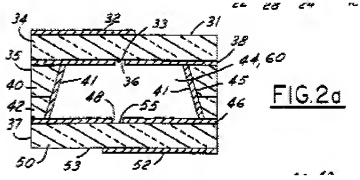

FIG.2a

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katchi et al US Patent 5,821,836 (cited by applicant) in view of Boujet US Patent 4,320,367.

Details of the Katchi et al reference is given in the above 35 USC 102(b) rejection.

Thus, Katchi et al is shown to teach all the limitation of the claim with the exception of a tuning structure capable of adjust a frequency characteristic of the resonator assembly and wherein said tuning structure comprises a piece of dielectric that is provided in said at least one cavity through an aperture.

Boujet disclose in figure 1 a filter comprising a plurality of cavities (3 4 5). Each cavity includes a dielectric tuning screw (13 14 15) for adjusting the resonant frequency of the cavity. (Abstract)

Therefore, one of ordinary skill in the art would have found it obvious to provide the cavity of Katchi et al with dielectric tuning screw as taught by Boujet . The motivation for this modification would have been to provide the benefits of a means for adjusting the resonant frequency of the a previously un-tunable cavity in Katachi, thereby suggesting the obviousness of such a modification.

Allowable Subject Matter

Claims 29 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regards to claims 29 and 39, the prior art of record does not disclose or fairly teach the first and second wafer being formed of glass.

Claims 14, 16, 18-21, 24-27 and 30-38 are allowed.

With regards to claims 14, the prior art of record does not disclose or fairly teach a plurality of via holes surrounding the aperture formed in the layer of metal. With regards to claims 16, 18-21 and 25- 27 the prior art of record does not disclose or fairly teach a cavity forming a coupling aperture disposed between said first resonator cavity and said second resonator cavity. With regards to claims 24, the prior art of record does not disclose or fairly teach a tuning structure comprising a metal cap that is

provided in the aperture. With regards to claims 30-36, the prior art of record does not disclose or fairly teach the third wafer having at least one pit and wherein the plurality of pits in the second wafer forms a bean extending from the first end of the resonator assembly. With regards to claims 37 and 38, the prior art of record does not disclose or fairly teach the specific method steps.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Caillat et al US Patent 5,796,321 disclose a self supported apparatus for propagation of ultrahigh frequency waves (figure 1b), Song et al US Patent 6,411,182 disclose a cavity resonator (figure 2G) , Handforth et al US Patent 6,603.376 disclose a suspended stripline structures (figure 3), Sinsheimer et al US Patent 6,888,427 disclose a flex circuit based high speed transmission line (figure 3b) and Dutta US Patent 7,298,234 disclose a high speed electrical interconnects (figure 6c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY E. GLENN whose telephone number is (571)272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817

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